HDV™
HDV 1080i

you can

Canon

XH A1

Handheld Professional
HD Video Camcorder

Canon HD: Expand the horizon

Welcome to the wider horizons of High Definition production with Canon HD.

For 70 years, Canon has stood at the cutting edge of innovation in photographic, video capture and broadcast lens technologies. Continuing this tradition, the Canon XH A1 is a genuinely handheld camcorder that brings the professional standards of HDV1080i capture to a new generation of creative video makers.

For digital filmmaking, ENG work or independent production, capture life as it really is – unleash your creativity.

- 1/3" 1.67MP 3CCD sensor array, with horizontal pixel shift, for HDV1080i recording
- Precision L-series 20x optical zoom lens with shift type OIS
- Fast auto focusing with the new Instant AF system; Focus Assist for manual focusing
- Advanced DIGIC DV II processor, optimised for HD
- Compact design and control layout for balanced handheld use, with internal battery system for extreme environments
- Separate focus, zoom and iris ring controllers
- Widescreen 2.8" LCD and 0.57" 100% coverage EVF
- Complete control over a range of image variables, including colour correction
- Custom preset, custom key and Cine gamma
- Accessory hot-shoe and XLR audio input

3CCD PIXEL SHIFT

PROFESSIONAL QUALITY 3CCD

To achieve the superb, lifelike video capture of High Definition recording, the XH A1 employs the same 1/3" 1.67 Megapixel 3CCD sensor system of Canon's flagship HD camcorder, the XL H1.

Since HDV uses MiniDV media, the XH A1 retains the additional capacity to capture high resolution Standard Definition (SD) content. The choice of SD or HD resolution production offers digital filmmakers and other content producers the ability to combine both SD and HD workflows – continue to work on your existing long term video projects.

25F FOR DIGITAL FILMMAKING

For many projects, the ultra-realism that is characteristic of HD video may be inappropriate. Recognising that most video makers have a diverse range of creative needs, Canon has equipped the XH A1 with progressive-look 25F shooting. In order to better realise the characteristic texture of shooting on film, two dedicated Cine gamma and color matrix settings are also provided.

With the XH A1, creative versatility comes as standard.

HDV™

HDV 1080i

The HDV standard was developed as a way to store HD resolution video on inexpensive and widely available MiniDV cassettes. HDV1080i is recorded at 1440x1080 pixel resolution and employs MPEG-2 video compression. It has a sampling (digitizing) rate of 4:2:0 and can be streamed via a single Firewire cable – HDV offers maximum efficiency without compromising quality.

Leading the way in optical design...

Canon's 48 years of experience in lens manufacture specifically for broadcast use means that the XH A1 inherits industry-leading optical expertise. The camcorder features a 4.5-90mm ƒ/1.6-3.5 20x optical zoom L-series lens.

HD Video Lens

Canon HD begins with the quality of the glass. As acknowledged optical experts, the majority of lenses used by broadcasters at the 2006 FIFA World Cup – over 200 – were supplied and supported by Canon.

ASPHERICAL LENS ELEMENTS

The XH A1's lens system is composed of 16 elements in 11 groups, incorporating one aspherical element. While this configuration allows the lens to retain a more compact size than would otherwise be possible, the use of an aspherical element has an additional and significant advantage.

Conventional lens elements are prone to the effects of spherical aberration: light rays, entering the element, converge at slightly different focal points. Through the use of an aspherical element the problem is effectively eliminated.

FLUORITE AND UD LENS ELEMENTS

The XH A1 achieves superior optical performance through the use of Fluorite and Ultra-low Dispersion (UD) glass elements.

Fluorite and UD elements effectively correct aberration because they possess special diffraction properties – the result is high contrast images that have incredible sharpness and accurate colour reproduction.

FULL CONTROL

The camcorder offers you an exceptional level of control over shooting variables: three separate ring controllers allow fine manual adjustments to be made to focus, zoom and iris settings. Function buttons are positioned on the camcorder's body in an optimal layout for professional-level use.

FOCUS AND ZOOM PRESETS

The XH A1 can be programmed to remember focus and zoom points, which can be returned to at the push of a button. This function is particularly useful for dramatic productions and film projects that require multiple takes from the same position.

Unlock the true power of HD...

Since High Definition images are defined by far greater resolution, focusing errors are significantly more noticeable. However, shooting aids developed by Canon are available to help you consistently achieve sharp focus.

Instant AF

Instant AF is a new auto focus system specially developed by our engineers to meet the increased demands of High Definition recording, providing high speed auto focus with amazing accuracy.

Recognising the problems that can afflict conventional TV AF systems, Canon developed Instant AF as an advanced hybrid system that combines Canon's efficient HD auto-focus algorithim (developed for the flagship XL H1 camcorder) with an external metering sensor.

The Instant AF system is able to rapidly identify a subject's distance and focus on it quickly and accurately. The high speed External AF sensor quickly detects the range of the shooting subject; a TV AF sensor is then employed to perform the super fine focusing that achieves absolute clarity.

OPTICAL IMAGE STABILIZER

SUPER RANGE OPTICAL IMAGE STABILIZER

Canon's Super Range Optical Image Stabilizer is a hybrid system that augments the traditional, optical lens shift system with an additional electronic method of camera shake detection: shake is effectively eliminated even when the camera is being used handheld at the extremes of the zoom.

Conventional IS systems can usually detect only medium and high frequency vibrations. The XH A1's system has been developed to register additional low frequency motion, recording steady images whatever the shooting environment.

FOCUS ASSIST

To aid manual focusing, dedicated buttons on the camcorder's body activate the Focus Assist function. With the option to select Magnifying or Peaking, preview images can be enlarged or emphasised, making it easier to judge focus.

HD in your hands

Canon's XH A1 – an accessible and versatile camcorder that brings the power of HDV1080i shooting to the next generation of creatives.

DIGIC DV II

DIGIC DV II

Introduced with the flagship XL H1 professional camcorder, Canon's DIGIC DV II image processor is optimised for the increased processing requirements of high resolution HD video (approximately 4.5x greater than Standard Definition video). This second generation of Canon's proprietary processing engine incorporates a noise reduction system, providing exceptionally low noise images distinguished by excellent colour reproduction and a wide tonal range.

For continuity applications, the XH A1 also features digital stills capture (up to full 1920x1080 pixel size) – useful for location scouting and for visual storyboarding, among other applications. With DIGIC DV II it is possible to capture 2 Megapixel stills at the same time as video is recorded.

HANDHELD TO THE EXTREMES

The compact, balanced design of the XH A1 allows you to take powerful HDV1080i shooting into new and extreme environments. The camcorder incorporates a new internal battery system, thereby benefiting from added protection and insulation.

SUPERIOR QUALITY AUDIO

Since every production relies on good quality audio capture to complement its imagery, the XH A1 is equipped to a professional standard. While an onboard microphone proves adequate in many situations, twin XLR audio input connections are also provided, with levels that can be independently adjusted.

Software and kit contents

CONSOLE

CONSOLE, powerful studio software for PC, manages the recording and playback of SD and HDV data. It includes support for the recording of footage straight onto a computer's hard disc drive (HDD).

CONSOLE allows users full remote control of the XH A1 via a Firewire cable. Users can control image variables, including Gamma, Master Pedestal, Color Phase and AE metering, and also operate and adjust zoom, focus, white balance, iris, frame rate and shutter speed settings. Still image capture, custom preset and Focus Assist functions can also be controlled via the PC.

CONSOLE features an intuitive menu system and has an easy setup mode. With split screen views of record and playback controls/viewing windows, video captured to the PC's HDD can be reviewed in the playback window while a new shot is being monitored in the record display.

Additional features include wave & vector monitors, allowing precise adjustments to be made to video and phase parameters.

- **OS:** Microsoft Windows XP Home Edition or Professional (Service Pack 2 required)
- **CPU:** Pentium 4 2GHz or better (3.2GHz or better recommended); Pentium M 1.5GHz or better
- **RAM:** 512 MB or more (1 GB or more recommended)
- **Free Hard Disc Space:**
  - **For installation:** 30 MB or more
  - **For video recording:** 1 GB or more
- **Display:** 1024x768 or more required; full colour (32bit) required
- **File System:** NFTS
- **Interface:** IEEE 1394 (OHCI compliant)
- **Compatible Camcorders:** XH A1, XH G1, XL H1, XL2

Download free trial software at:
http://www.canon-europe.com/support/software/dv_console

WHAT'S IN THE BOX

- **XH A1 body with lens cap**
- **SD memory card, 16MB**
- **HDV video cassette**
- **Wireless controller and batteries**
- **Lens hood**
- **Compact power adaptor and cable**
- **Battery pack**
- **Shoulder strap**
- **Stereo cable**
- **Scart adaptor**
- **Component video cable**

Specifications **XH A1**

VIDEO SYSTEM	HDV
CCD	
Type	3x 1/3" CCD horizontal pixel shift
Total pixels	1.67MP x 3
Effective pixels	HD: Approx. 1.56 megapixels SD/4:3: Approx. 1.17 megapixels SD/16:9: Approx. 1.56 megapixels
Filter	RGB Independent Primary Colour
LENS	
Optical Zoom	20x
Digital Zoom	N/A
Zoom Speed	Variable speed/Fixed speed (16 speed level settings available)
Focal length	4.5 - 90mm
Focal length equivalent 35 mm for	Video 32.5 - 650 mm 16:9 mode Photo 32.5 - 650 mm 16:9 mode Photo 39.8 - 796 mm 4:3 mode
Aperture	f/1.6 - 3.5
Minimum focusing distance	20mm
Image Stabilizer	YES (optical, lens-shift)
Filter diameter	72mm
Aperture leaves	6 leaves, iris diaphragm
LCD	
Screen size	2.8", widescreen 16:9 format
Pixels	207,000
Manual adjustment	Brightness, Contrast, Colour, Sharpness, Black and White Mode, Skin Tone, Sky Detail
VIEWFINDER	
Screen size	0.57", widescreen 16:9 format
Pixels	CL 269,000
MINIMUM ILLUMINATION	
Minimum Lux. (Manual Mode)	0.4 lux (Shutter speed 1/3, Gain 36dB)
FRAME RATE SETTING	
Frame rate setting	50i / 25F
FOCUS	
Control	Auto: Instant AF Manual: Independent focus ring Focus preset: Button selection
MF Operation	Focus ring operation
EXPOSURE ADJUSTMENT	
Program AE	7 Full Auto, Auto, Spotlight, Low Light, Tv, Av, Manual
AE lock	EXP.LOCK button operation (Auto, Tv, Av mode only)
AE shift	+/- 2 levels (Auto, Tv, Av mode only)
Gain setting	Auto/Gain select (-3, 0, +3, +6, +12, +18, +36dB) Set to Auto in Full Auto and Night mode, Spotlight mode is fixed at 0dB
WHITE BALANCE	
Type	TTL
Auto	YES
Set/Preset	Outdoor (5600K), Indoor (3200K), Set (2 available), Colour temperature setting
Lock	YES
SHUTTER SPEED	
Tv mode	1/3, 1/6, 1/12, 1/25, 1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, 1/16000 sec (50i / 25F)
Auto mode	1/50 - 1/500 sec (50i), 1/25 - 1/500 sec (25F)
Night mode	1/3 - 1/500 sec (50i / 25F)
APERTURE VALUE	
Av mode	Iris ring operation, f/1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.2, 3.4, 3.7, 4.0, 4.4, 4.8, 5.2, 5.6, 6.2, 6.7, 7.3, 8.0, 8.7, 9.5, Close
IMAGE QUALITY ADJUSTMENT	
Skin detail setting	Can be made after making hue, chroma, area and Y level adjustments
Skin detail setting	ON / OFF
IMAGE QUALITY ADJUSTMENT (CONT.)	
Custom Preset	Adjustment of gamma, knee, black, master pedestal, setup level, sharpness, H detail, H/V balance, coring, NR (1/2), color matrix, color gain, hue, R/G/B gain and matrix (6-axis adjustment)
CUSTOM KEY	YES (2 available)
TIME CODE	
Countup system	Rec Run, Free Run, Rec Run Preset, Hold
Start value setting	"00:00:00:00", Set, Reset selectable
STILL IMAGE RECORDING	
Capture image size	1920 x 1080, 1440 x 1080, 848 x 480, 640 x 480
Memory Card	Multi Media Card, SD Card
ZEBRA PATTERN	
Level adjustment	Selectable from 70%, 75%, 80%, 85%, 90%, 95%, and 100%
COLOR BAR	2-type built-in
REC. SEARCH	YES
CLEAR SCAN	YES
STANDBY SWITCH	YES
POWER SAVE	
After recording is paused for 5 minutes	YES
WIND SCREEN/VOICE	ON / OFF
AUDIO	
System	SD: PCM digital recording (48kHz, 16 bits or 32 kHz, 12 bits selectable) HD: MPEG1 Audio Layer II (Sampling frequency: 48 kHz) (Bit rate: 384 kbps)
Manual Rec. level control	YES
TERMINAL	
Headphone	3.5 mm mini-jack
Microphone	Microphone jack (3.5 mm), XLR microphone jack (Phantom power supply supported: 2 systems)
HDV/DV	Input/Output IEEE1394 Firewire
AV (A/V1)	3.5 mm, 4-pin mini jack (Both input/output)
VIDEO (V2)	BNC connector (Both input/output)
XLR	XLR 3-pin jack (2 systems); Switchable between MIC/LINE
HD-SDI	NO
SD-SDI	NO
Timecode	NO
Gen lock	NO
Component	1080i/576i supported
LANC	2.5 mm stereo mini jack
ACCESSORY SHOE	YES (hot shoe)
WIRELESS CONTROLLER	WL-D5000
ANALOGUE DIGITAL CONVERTER	YES
BATTERY PACK	
Type	Lithium-Ion
Battery included in the kit	BP-950G
Long life Battery	BP-970G
Longer recording time[1]	Approx. 7 hours
DIMENSIONS	
W x H x D	163mm x 189mm x 350mm
Weight	2030g

1. using above optional long life BP

All data is based on Canon's standard testing methods. This Leaflet and the specifications of the product have been developed prior to the date of product launch. Specifications are subject to change without notice. ™ and ®: All company and/or product names are trademarks and/or registered trademarks of their respective manufacturers in their markets and/or countries.

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